500.34763CX4

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: MASUI, et al

Serial No.: Not yet assigned

Filed: December 21, 2001

For: CDMA MOBILE COMMUNICATION SYSTEM AND COMMUNICATION METHOD

Group: 2664

Examiner: S. Nguyen

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

December 21, 2001

Sir:

The following amendments and remarks are respectfully submitted prior to the Rule 53(b) Continuation Application filed on even date.

IN THE SPECIFICATION

Please insert before the first line of the specification the following:

-- This is a continuation of application Serial No. 09/511,769, filed February 24, 2000; which is a continuation of application Serial No. 08/690,819, filed August 1, 1996, now U.S. Patent No. 6,269,088. --

IN THE CLAIMS

Please cancel claims 1-17 without prejudice or disclaimer of the subject matter thereof.

Please add new claims 18-27 as follows:

-- 18. A system comprising:

a base station;

a plurality of terminals; and

a reservation channel and a traffic channel formed between said base station and said plurality of terminals in accordance with a code division multiple access (CDMA) scheme in radio channels,

wherein a terminal having a request for data transmission transmits a reservation packet onto said reservation channel at arbitrary timing,

wherein said base station generates a busy tone signal in accordance with traffic channel utilization state information to control transmission of reservation packets from said plurality of terminals, and

wherein each of said plurality of terminals makes references to said busy tone signal to control transmission of a reservation packet.

19. A system according to claim 18, wherein said base station generates said busy tone signal in accordance with a number of reservation packets received by said base station through said reservation channel.

20. A base station in a system including a base station,

a plurality of terminal, a reservation channel and a traffic channel,

wherein said reservation channel and said traffic channel being formed between said base station and said plurality of terminals in accordance with a code division multiple access (CDMA) scheme in radio channels, wherein terminals having a request for data transmission transmits a reservation packet onto said reservation channel at arbitrary timing, and base station comprising:

means for generating, in accordance with traffic channel utilization state information, a busy tone signal which controls of transmission of reservation packets from a plurality of terminals.

21. A base station according to claim 20, wherein said busy tone signal is generated in accordance with a number of reservation packets received by said base station through said reservation channel.

22. A terminal in a system including a base station, a plurality of terminals, a reservation channel and a traffic channel, said reservation channel and said traffic channel being formed between said base station and said plurality of terminals in accordance with a code division multiple access (CDMA) scheme in radio channels, said terminal comprising:

means for, when having a request for data transmission, transmitting a reservation packet onto said reservation channel at arbitrary timing,

a busy tone value calculation routine which receives from a base station a busy tone signal to control reservation packet transmission; and

an upward schedule control routine which receives traffic state information from said busy tone value calculation routine to control issuance of reservation packets,

wherein said busy tone is generated at said base station in accordance with traffic channel utilization state information.

23. A terminal according to claim 22, wherein said busy tone signal is generated in accordance with a number of reservation packets received by said base station through said reservation channel.

24. A communication method in a code division multiple access (CDMA) mobile communication system for performing communication between a base station and a plurality of mobile terminals, said communication method comprising the steps of:

transmitting a reservation packet from a mobile terminal having a request for data transmission onto a reservation channel assigned a spreading code common to said plurality of mobile stations;

transmitting a reply packet on a reply channel assigned a spreading code common to said plurality of mobile terminals and different from the spreading code assigned to said reservation packet in the time slot defined on the traffic channel determined based on said reply channel which is assigned a unique spreading code and specified by said reply packet; and

periodically transmitting from said base station busy tone information indicative of traffic situation in its service area through said reply channel or through a channel dedicated to the busy tone information,

wherein each mobile terminal having a request for data transmission controls the transmission of a reservation packet based on said busy tone information.

25. A communication method according to claim 24, wherein said base station estimates, based on a number of reservation packets received during a previous constant period, a number of reservation packets to be generated in a next constant period, and generates said busy tone information based on said estimated value and a number of packets scheduled to be transmitted during the next constant period.

26. A mobile communication system comprising:

a base station; and

a plurality of mobile terminals,

wherein radio channels between said base station and said mobile terminals include a traffic channel used for transmitting data packets between said base station and said mobile terminals, a reservation channel used for transmitting reservation packets from a mobile terminal to said base station, and a reply channel used for transmitting reply packets from said base station to a mobile terminal, each of said reservation, reply and traffic channels being assigned a unique spreading code, each spreading code to said reservation and reply channels is common to a plurality of mobile stations in accordance with a code division multiple access (CDMA) scheme, and time slots are defined on said traffic channel,

wherein said each mobile terminal transmits a reservation packet onto said reservation channel when a request for data transmission is issued, and performs data packet

communication in a time slot determined based on a reply packet transmitted from said base station through said reply channel,

wherein said base station separates a plurality of reservation packet signals having partially overlapped portions on a time axis, received through said reservation channel, into reservation packets and performing a receiving process on said reservation packets, and transmits a reply packet through said reply channel, to each mobile terminal which is a source of each received reservation packet, and

wherein said each mobile terminal controls the transmission of a reservation packet based on said busy tone information.

27. A mobile communication system according to claim 26, wherein said base station estimates, based on a number of reservation packets received during a previous constant time period, a number of reservation packets to be generated during the next constant time period, and

wherein said busy tone information is generated based on said estimated value and a number of packets scheduled to be transmitted during the next constant time period. --

REMARKS

Entry of the above amendments prior to examination is respectfully requested.

Please charge any shortage in fees due in connection with the filing of this paper, or credit any overpayment of fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (500.34763CX4).

Respectfully submitted,

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